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ABSTRACT

Viewpoints on the university organization are represented which arose from study of the situation in the University of Denmark and the University of Copenhagen in particular. The question addressed is whether it is possible, by way of a simple set of rules to create a system of governance for higher education that will satisfy the demands of society. Emphasis is on building a close democracy with decentralized planning and coupled relations between all parts of the university and society. The process of designing alternative structures for the University of Copenhagen is clarified, as are the possible uses and problems to be considered with professional management in a university setting. Comparison with the University of California is made. Differences in the structure of the organizations and in particular the process of decision making in the budget planning are shown to result in differences in the research activity around the management and administration of the two institutions. Ideal university organization and working conditions are considered. (LBH)

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STUDIES IN INSTITUTIONAL MANAGEMENT IN HIGHER EDUCATION
- UNIVERSITY OF COPENHAGEN -

UNIVERSITY DECISION STRUCTURES

technical report

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UNIVERSITY DECISION STRUCTURES

(Note by the Secretariat)

This paper represents those viewpoints on the university organisation arising from the reflections on the situation in the University of Denmark and the University of Copenhagen in particular. The first two chapters by Mr. Jurkovich and Dr. Halpern are the result of their contribution to the project during their association with the Danish team. The final chapter written by Dr. Arne Jensen, Professor, Institute of Mathematical Statistics and Operation Research, Technical University of Denmark. It appeared as an article in the Copenhagen newspaper Politiken on April 30th, 1968 and in its overseas edition on April 27th - May 3rd, 1968. It was translated and included in this document since it represents an important statement on the fundamental issue of university reform.

TABLE OF CONTENTS

		Page
I.	INTRODUCTION . . . . . By Professor Arne Jensen	5
II.	NOTES AND SUGGESTIONS ON THE UNIVERSITY OF COPENHAGEN'S STRUCTURE . . . . . By Raymond Jurkovich, MA	9
III.	COMPARATIVE REMARKS ON THE UNIVERSITIES OF COPENHAGEN AND CALIFORNIA . . . . . By Dr Jonathan Halpern	27
IV.	THE UNIVERSITY OF THE FUTURE, ITS ORGANIZATION AND ITS WORKING CONDITIONS . . . . . By Professor Arne Jensen	37

CHAPTER I

Introduction

by

Professor Arne Jensen

The work in the CERI-group in Denmark has been guided by some of the views which I expressed in 1968*, supplemented with experience gained in the initial years of reform of higher education in Denmark.

If the university system covering all higher education, shall function in terms of its goals, and if it is to provide inspiration and knowledge about the relatively rapid changes in the society and discuss changes ideal of the future society, it is of vital importance to build a close democracy with de-centralised planning and coupling relations between all parts of the university and the society. In its current form the kind of centralisation of the more important decisions by the supreme governing body of the university (the Senate) and administration is not adequate; either in order to create a democracy inside the system of university or to recognize society's natural claims on the higher education sector.

The question is: whether it is possible, by way of a simple set of rules to create a system of governance for higher education which will satisfy the claims of society. That also goes for the future demands of society, whatever they may be within a public planning system, based upon in general, resource ceilings of money, staff-positions and physical facilities. If the politicians will permit, it will be possible to realise a system based upon a near-democratic organisation that shortens the distance between questions and answers and by a direct confrontation between the universities and the society in terms of a close coupling, as in the case of the medical specialists around the patient.

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*Published in the Copenhagen newspaper "Politiken" April 30, 1968, and in Politiken Overseas April 29 - May 3, 1968. "The University of the Future". A translation of this feature article is included in this volume.

Goals and Allocations of Means and Personnel to the Tasks

There are three fundamental objectives for allocating means and personnel for scientific work and education.

(a) observance of agreements with the categories of personnel involved in the system.

(b) satisfaction of minimum activity within teaching and

(c) sufficient research to meet the documented need of the public and the private sector in the future, say the next 15 years, as has been attempted in the recent Danish perspective plan.

To satisfy these three elementary demands you can among other things allocate the means and the personnel to the individual group in the system taking into account two factors. First, the performance of the claimant in the previous years in the field of teaching and research, second, proposals for future teaching and the research which meets the minimum demands of society, supplemented by a wide margin of security to cover the unforeseen (and, I must admit that a great part of the activity in the society has been unforeseen). In addition, means and personnel should be made available for a systematic coupling by different types of tasks between the university systems and the surrounding society.

In this coupling, involving "workshop research", the university systems and the social organizations in question contribute an equal number of persons to a development project of current or future interest outside the University ghetto. This assignment of research workers will create the desired coupling with the real world and its problems.

Such a way of proceeding will secure a flexible adaptation to the changing society and - as far as I can see - give the academic freedom new substance. Previously the researchers were protected by the right of "academic freedom" against the economic and ideological pressure of the society. Nowadays it has mostly been the tendency of collective decisions by colleagues to cause unwarranted meddling. Furthermore

.../...

the students sometimes demand pedagogical approaches that may be glib and barren repetition of stored knowledge. These phenomena have brought undesirable pressures on "academic freedom".

Democracy

I have not so far talked about the most important side of democracy which is hidden in the rules of voting. I have an implicit faith in the fact that if the decision making bodies get the relevant material on the table, and if a few elementary rules for living of human behaviour are observed, everything will be alright. But I do not underesgimate the present dispute of 33 and 50%'s participation rules. I only feel that the dispute is too narrow to be of use in our future system of university.

Here we will need everything - from personal veto through group veto to decisions in plenum with simple voting majority. We shall get areas where the students get a 100%'s influence and areas where the teachers get a 100%'s influence, likewise we shall get areas where the technical assistance in reality gets the right to veto. We shall get areas where new initiatives cannot be stopped before having been tried and we shall get areas where the decision is made inreality outside the system.

When talking of the university of the future as the political university, one must not forget, that the university has always been a political institution. Only the political currents of the post war period as characterised, for instance, by the McCarty-ism in the Fifties and the demand of the pedagogical currents of a detailed planning has, as an interlude, concentrated round the technically more complete product. The discussion on the society of the future and its conditions has thus receded somewhat into the background. Short-term details have replaced long-term attitude. But let us not confuse the political university with the militant. The latter has nothing to do with the factors which have furthered our culture under all skies. One must remember that the task of the university of the future is the same as always to secure the fund of knowledge and point out new possibilities, both economic and cultural, for the changing of our society per se This goes on forever notwithstanding how many revolutions we must go through in the meantime and notwithstanding the political colour of the individuals.

In recent years society has been magnaneimous to the universities. But it has also been shown that society can react negatively to the challenges from the academicians and the students. The university of the future is integrated with the society of the future and not a ghetto as it was before. There will be room for everybody, students, researchers and others, who will make a contribution to the promotion of our culture and also fight for the right of others to do the same.

The student revolution has shaken the system which had become much too rigid to permit society's point of view to be introduced into the debate.

The changes in the system that the students have initiated may bring about a rigidity on an inferior level of quality. I am confident that the superior social considerations behind a significant part of the activity of the students in this field will prevail, so we are going to stablize the system on a higher level of quality than before.

CHAPTER II

Notes and suggestions on the University of Copenhagen's structure

by

Raymond Jurkovich, MA.

Introduction

In the following discussion an attempt is made to clarify and expand on two points: the process of designing alternative structures for the University of Copenhagen and the possible uses and problems to be considered with professional management in a university setting.

Approximately 35 interviews were carried out. If anything, more questions were raised than answered, and although it was one year ago that this work began the same questions are still ominously hanging around, the most important being "What do people do here?"

The "new law" dealing with the University of Copenhagen's structure appears to be an enlightened move towards integrating administrative activities; the earlier model had two subsystems engaged in some kind of cooperative antagonism. While the present change may appear to be inconsequential it is a major revolution for academic organisations where roles immediately under the President's or Rektor's jurisdiction are "first class", whereas the rest are sometimes referred to as "clerical support". (See diagrams II.3.1 and II.3.2 for a comparison of structures). Clustering administrative services under one umbrella tends to eliminate the previous status differences and competition between large components and to concentrate it in one where control and conflict resolution are more manageable although the degree of intensity may not be less.

Secondly, and more importantly, is the fact that a planning function at the macro-or University-wide level has been formally recognised. Previously, most planning was carried out primarily at the Institute or Department level with a conspicuous absence of inter-Institute coordination. Planning at the macro-level creates the potential of coordinating the Institutes' plans within the budgetary ceiling established by the Ministry of Education. On paper there is no coordination between the budget and planning components, but it is safe to assume that informal cooperation will develop.

However, at the writing of this report the University's planning function seems to be as non-defined and vague as it was when the law was passed. Perhaps this is natural since the activity in such a scale is new to the University and experienced personnel in educational planning are difficult to find. Also,

the relation of the planning groups to other components and its role (advisory or control) needs to be outlined. The bias of this writer here is to suggest that it remain advisory - their analyses alone will influence both the substance and process of decision-making. The role of planning bodies in most organisations are generally - although not exclusively - perceived as being the tools of the decision-makers, much to the frustration of planners. The fact that the definition of the structure is proceeding very slowly need not be a serious concern since a major change such as the University is going through needs thorough and intensive debate.

The "new law" contains a great deal of flexibility (in that it deals very little with specifics) which allows for the generation and comparison of alternative structures. Five are mentioned below and one may deviate slightly from the law, but with imagination it could be adapted provided it is acceptable and people are willing to negotiate for it. In addition, the new law is such that if one structure is implemented but proves to be unsatisfactory the participants can opt for another, whether it be one designed here or one of their own efforts. The emphasis in all five cases is not on administrative process, nor on policies, nor on planning but on the capacity to develop all three. While staff and student size have remarkably increased in the last decade little attention has been devoted to administrative change particularly in the areas of policy-making and planning since there were no components designed to deal with it.

The first alternative is concerned not so much with a macro-structural change, but with a small change of the Konsistorium's (or the Academic Senate) role which, up to the present time, has been little more than an "automatic approval board" of budgets submitted by Faculties (Colleges) and, as a sometimes control board, whenever groups or individuals deviate from the community's informal norms and ethics. Its chief characteristics are not policy-making, policy-review, and/or planning.

The Konsistorium appears on paper to be the University's chief decision-making component. It is common knowledge that it is not. Interviews with seven of twenty one voting members suggests that the body is ineffective. The discussion agenda is controlled by the Rektor, the body meets only once every one to two months unless urgent matters unpredictably arise, and decisions are generally made with very little discussion or debate, decisions having been made informally ahead of time.

The real decision-makers are the Rektor and an inner cabinet of 4-6 people chosen by the Rektor. These people remain attached to their respective Institutes and devote approximately 60 hours/week to administrative and teaching activities. Precisely what areas they are responsible for, if any, is not known. Thus, executive decision-making appears to be basically an informal process coordinated by the Rektor who is undoubtedly the most powerful single person in the University.

Alternative I:

Potentially the Konsistorium's effectiveness can increase if the size were to be drastically cut to a body of no more than 15. Groups larger than this generally tend to have serious difficulty controlling themselves. One of the fundamental observations in social psychology in the last fifteen years is that large groups as decision-making agents tend to be very ineffective; there is nobody anywhere disputing it. Indeed, one of the major problems of universities seems to be the presence of large clumsy governing bodies with dozens of committees that irregularly meet or when they do, nothing much is accomplished. One question addressed to interviewees was concerned with the committee method as an adequate decision-making tool. Most people did not know how to respond - apparently they never knew other ways existed - but two stated that decision-making rates and effectiveness might increase if fewer different people were on the existing committees. In other words, instead of spreading committee participation around to almost every academic person, limit membership on committees to a fewer number of people and allow them to serve on the existing committees at all points in the system. The main political disadvantage of this is that it tends to create an administrative ruling elite, something decidedly unwanted in an academic setting. However, a contradiction exists since those who want to rise to the top of the administrative ladder can do it if they want to, and many people would be quite happy to see someone else doing it. There are usually a number of ambitious people desiring high status positions in an administrative setting. Resolution of this conflict may not be so simple, but if the University intends to rationalize administration, the optimal path will be to develop the capacity first and not expect somebody to wave a magic stick creating an instant administrative utopia. Increasing the process capacity cannot be attained overnight, but having a complex latice of committees will not help matters. Oddly enough nobody knows just exactly how many committees there are in the University. One interviewee said 38, but when asked again a few weeks later he did not know nor could he define the roles of any of the existing ones.

While the Konsistorium's size is remarkably small compared to the frightfully huge and complex governing bodies of most American public universities it would be even more advantageous to reduce it further and concern itself with non-routine affairs in addition to the budget. By non-routine affairs is meant matters of policy change and new policies but not enforcement and procedures. In addition, the presence of the budget office, to formally or informally provide some order in the budgetary process should be considered. The submission of over-inflated budgets, half of which is not granted and half of which is not justified, must stop if only for the reason of responsibility to the public. The budget group, assuming it is familiar with resource availability, could lend some control and guidance to the current situation.

Finally, this body might take measures to activate itself (only after it becomes smaller) by increasing the meeting frequency to discuss qualitative policy changes in greater detail. Provided with adequate analytical and planning services, they could prove to be a major catalyst in educational and organisational innovation.

Alternative II:

If the Konsistorium is to remain as a control unit, but not a policy generating and review component, then under consideration should be a set of three committees: Organisational Development Committee, a University Planning Council, Educational Research and Policy Committee. (See Diagram II.3.3).

The Organisational Development Committee should consist of an equal number of students, academic staff, and non-teaching staff (preferably from the Kurator's office) responsible to the Rektor and Konsistorium for continuously scanning the University for developing problems and scanning the environment for resources and solutions to those problems that it cares to take up itself or the Rektor or Konsistorium care to assign it. (But priority over topics should be under the committee's control.) Hence the task of this committee is to concern itself with increasing the University's problem solving process capacity (i.e., new ways to organise and/or commit resources to persistent problems).

To enhance this capacity the committee should be integrated with the University's rapidly developing data processing and planning groups. The need now is not necessarily to give the University "x" number of people to handle the increasing workload, but to provide them with the capacity to empirically determine how many more they do or do not need and where and for what reasons. Whenever it was asked that people who needed more personnel to prove it, they hesitated because they had no evidence. In addition, they indicated they had no time to construct indexes on changing workloads. Continuously presented was that the number of students and teachers have grown tremendously in the last decade without a corresponding increase in administrative staff. This is of special interest when the exact number of students, teachers, and non-academic employees are still not accurately known although it will be in the next few months. A long standing joke in the University is that a Professor Parkinson once visited the University and stated that the University of Copenhagen was the only exception to his law. People seem to feel that this is true but have made no efforts to quantitatively define it.

In addition to the Organisational Development Committee, the establishment of a University Planning Council concerned with long range planning (more than five years) should be considered. Since there is no evidence of this particular type of planning at the macro-level it would be desirable since environmental units such as the Ministries of Education and Finance are moving

towards this direction. A major concern should be accurate cost estimation of various projects that Faculties submit. In addition, the committee should discourage the present method of budgeting where what was not obtained the previous year is added on to the coming year's request by planning within anticipated ceilings. As with the Organisational Development Committee, the Planning Council should be responsible to the Konsistorium and the Rektor and consist of equal numbers of students, academic staff, and non-academic staff from the Kurator's office.

A third committee of extreme importance is one to deal with educational research and policy. In an area of great public importance and expenditure and little intellectual understanding, a great deal more research is needed. What a university education is and what it is supposed to do, under what conditions learning can be facilitated, what methods are available other than those now, alternative explanations and cost-analysis of drop out rates, etc., are all items that drastically need research. An area that may be critically in need of attention is the use of hourly paid teachers. Our interview data revealed that there is some dissatisfaction with the present policy. One individual stated that hourly paid teachers give lectures but leave the burden of student consultation with full-time staff members. The traditional teaching method (a one-way monologue) has come under severe criticism during the last decade. It may be time to begin empirically assessing the effectiveness of resource usage for hourly paid teachers and construct, examine, and compare other alternatives that are more appealing. As in the other two committees the equitable representation of students, teachers, and non-academic staff is imperative to enhance completely thorough evaluations.

All three committees can coordinate their activities by having at least two members in common acting as links between the committees and the Konsistorium. With the exception of students, committee members should serve no less than three year terms in order to develop and maintain competence.

Alternative III:

A third alternative is to formally establish a series of pro-rektors offices each one responsible for a functional area that committees in the second alternative would have been assigned. (See diagram II.3.4.) In addition to the current pro-rektors office, which could be changed to the Pro-rektor for Organisation and Administration, one other, which could be created from the current "secretariat to the Rektor", would be charged with Educational Policy and Procedures, and the third with Planning and Finance. The third one could be made by changing the Administration Chief to Pro-rektor. Because of legal problems it may not be possible to change the names, but the function of each or the role of each office can be redefined. The Pro-rektor's role has traditionally been very inactive (with the exception of the current one who has been asked by the Rektor to chair a committee charged to review and evaluate the consequences of the new structure). As this writer understands it the

Pro-rektor's role is a sort of contingency role: whenever the Rektor is absent from the University, the Pro-rektor automatically but temporarily assumes the Rektor's responsibilities. The current set of academic offices can be easily arranged under or integrated into the above. This can be debated when the time is ready for it. It is absolutely imperative that the EDP group should be oriented towards and in coordination with these three. In addition, pro-rektors or their equivalent in the future should be full-time administrators with terms of no less than three years. It may only be possible to fill some of these roles with people from outside the University. While this would be problematic in the beginning, since university-administration differs greatly from private and other governmental administration, it could certainly not create any more difficulties than the University has now. Nevertheless it still may be preferable to recruit people from an educational setting not excluding personnel from the Ministry of Education who might occupy roles on a rotating basis. This would have the advantage of increasing the quality and quantity of information between the two organisations. The disadvantage, from the University's view, would be that it might look like the Ministry of Education is running the University on a day-to-day basis.

The "pro-rektors" roles should be as loosely defined as in this paper at the outset in order to let the definitions crystallize as their responsibilities and areas of jurisdiction becomes clearer. Establishment of a rigid role set is like establishing an unreal pattern before the real one has a chance to develop. In order for the University to change, it is going to have to generate information as part of a basis for change, and the optimal method to do this under the present circumstances appears to be the encouragement of developing data in areas where change is desired or required. Data will have to be generated as the problem-solving process evolves. Administrative roles will have to be precisely defined only as problems are defined and solved.

The third alternative obviously resembles the developing American form of university administration. The argument for this particular alternative, however, is not that by adopting American forms will administrative problems magically disappear. The argument is rather that by taking an inductive leap forward the problem-solving capacity will dramatically increase. Large organisations need management and planning; as stated before this capacity is barely existent in the University, and since there is a desire for administrative change, now appears to be a "good" time for turning desire into reality.

Alternative IV:

A fourth alternative, a derivative of the one above, is to place planning and analysis responsibilities under the jurisdiction of the Pro-rektor. In addition, analytical services should be centralized in this office: personnel could be taken from the current EDP-group, what planning personnel there are now, and from the "Secretariat to the Rektor". (See Diagram II.3.5.) The Administrative Chief would be held accountable for

Administrative Policy and Procedures (teaching and non-teaching) and thereby integrate both. The Konsistorium, Administrative Chief, Rektor's Office, and Faculties should store and share each others information in the Pro-rektor's Office, thus creating an interdependent situation where a great deal of bias could be eliminated.

The EDP and analytical unit may need considerable (but temporary) expansion for the next three years in an attempt to accelerate information gathering and processing. That is, at least five more positions to expire three years from now would radically facilitate organisational requirements. It would take little imagination to justify these positions considering the condition the University is in. The areas of library services and records policy would be enough to keep them busy. Given the additional burden of innovating new ways to obtain information on students entering and going through the system and comparing policies of other higher education institutions, they will have to work very hard. Given another of designing an accounting code they will be overwhelmed. In addition, it would be wise to explore the alternative ways in which some personnel from other administrative units could be integrated on a part-time basis in an attempt to maintain the analytical group's freshness with problem definitions that are continuously changing. This would discourage tension between the analytical unit and the others as well as promote appropriate and acceptable solutions. Finally, the inclusion of approximately three part-time students to conduct studies of their own design (under the condition that they be published routinely in student publications) would be an inexpensive method of including representatives from most of the system. It will be interesting to observe how student attitudes may change when confronted with the magnitude and complexity of the University's problems.

Alternative V:

A fifth alternative is to increase the analytical, control, and planning, capability of the economic administration after the academic administration has been merged with it. The present accounting system does not allow any reasonable form of cost analysis because of the lack of a detailed coding system; alternative budgeting experimentation capability is limited; expenditure control is essentially non-existent, the personnel problems ("If somebody doesn't like it here, then they can quit") are given no analysis and there is no personnel manual providing a frame for employee behavior. On paper the new structure has some potential in the planning area, but there appears to be little formal discussion over that group's role. Presumably there is to be some integration between this group and a planning committee of the Konsistorium. However, without an adequately trained analytical staff nothing of significance will emerge. Personnel in that unit must have statistical and programming capabilities that the University is attempting to develop in the EDP group before alternative planning can begin. Even more critical are Konsistorium members who know what planning is about. The analytical component is a necessity to any large organisation; the quicker the University can develop it the sooner the University can engage in effectiveness studies completely lacking now.

Comparisons:

When the alternatives are compared technical advantages may make little difference, since the people concerned may tend to perceive any change in their own political interests and not the interests of the total organisation. Political acceptability is more the case since coalitions will eventually negotiate something where the threat to each has been minimized. Any kind of analyses will have to be concerned with the participants' structure and strategies and tactics to modify them. This writer prefers alternative number III, not because it is the "best way" or a politically acceptable alternative, but merely because it follows the pattern throughout the rest of the world whenever universities are "rationalizing". Probably the most important outcome has been that when planning and budgets are done the total institution and its environment is considered: the plans or the effects of plans between institutes are studied thus opening the system within.

It has been extremely difficult to work with the University of Copenhagen, not because the people are "bad" but because the organisation resembles a cloud more than an organisation with clearly defined roles and components and their relationships. At least up until one year ago there were no lists of committees defining their authority and arenas each are responsible for. This could lead to a cynical view of university organisation: nobody wants anybody else to have majority power and consequently nobody tells each other that they exist, what they are doing, and how much they have. Everybody assumes everybody else has more hence they spend most of their time trying to neutralize one another or maintaining an invisible equillibrium. A chancellor at one of the University of California's campuses once told me that beginning students soon discover that the University is corrupt. In terms of administrative responsibility and accountability his statement can be safely considered as a generalization about universities with few exceptions.

One main purpose of presenting five alternatives is to present a range of possibilities that from modestly to radically depart from the "old" situation. But underlying all five are the notions of developing the University's self-critical capacity, planning capacity, problem-solving capacity, and integration that are substantially lacking now at the executive level.

A second point underlying all five, although it differs by degree, is the integration of administrative activities under one umbrella. This tends to clarify the roles of individuals and components and the authority and information relations between components. Thus, the University as a cloud will disappear. There is nothing especially new about these notions; every executive tries to optimize them if the situation allows for it. The question that puzzles practitioners and consultants is how to establish positive controls. Political, legal, technical, social, psychological, and economic complexity would be no serious problem if the situation was not constantly changing. Every

generated plan or structure rests on a stable set of assumptions, values, and information. Once these change the plan or structure suddenly becomes incongruent with the situation. For this reason a component or committee on organisational development was suggested; that is something to develop the capacity which will allow minor incremental adjustments whenever the need begins to arise. This tends to avoid major organisational explosions such as that the University is experiencing now. Organisations tend to "freeze" their structures over time, but minor alterations in which the members participate contribute to the maintenance and expansion of adaptive capacity to internal and environmental change. This helps solve the uncomfortable problem of shifting positions around so radically in a short period of time, thus threatening the members status and security.

Professional Management:

Designing structures for most organisations generally assumes that enough professional managerial resources are available inside and enough willing to come in from the outside. Universities, however, are another matter. Personnel occupying roles near the Rektor's or President's level (and sometimes the President) have virtually no technical competence required by other organisations. In many cases these people are little more than super-clerks "kicked up" from the operating level because of scientific incompetence. While this pattern is changing, in many cases it has been very painful with competent people leaving shortly after they arrived. The slowness of university administration with its complex community structure can be frustrating for contemporary managers unaccustomed to seemingly endless and irrelevant committee discussions. Also, managers in industrial and other settings usually share some control in part or all of the organisation. Teaching and research staff are very reluctant to give up control to technocrats. Managers, on the other hand, are not content to be doing all the work but not making or participating in decisions.

Institutionalising professional management within the University of Copenhagen does appear to be one of its goals even though planning has not been formally outlined. In all Faculties and at the executive level there appeared to be a demand and a clear need for professionalising administration much greater than what currently exists.

If the Ministries of Finance and Education are concerned with a more efficient use of resources and collecting large amounts of relevant information for refining decision-making, then they should consider resource allocation to developing a cadre of professional managers and administrators. Many Institutes do not respond to requests for information for a variety of reasons. The main ones seem to be that people do not know how to go about gathering it, or if they do they "have other matters requiring immediate attention", or they simply cannot appreciate the uses for which the data will be put to use. It is possible that they are looking for an excuse to avoid a time consuming task (something we have no evidence of) or perhaps since they do not

appreciate what it will be used for they tend to take it lightly. Thus it is next to impossible to quantitatively define problems as well as construct alternative choices in decision-making.

Fortunately, there is a positive effort underway to develop a data base. Of particular interest is the number of data collecting projects that have taken much longer than originally anticipated. Data analysis was delayed one year because of collection problems. The reasons are certainly not the people in the EDP section; we found them to be as enthusiastic and as imaginative as any other group of its kind. The major reason, in addition to those listed above, seems to be an absence of an orderly standardised records system. It may take years to design and implement an effective system with built in controls. The seeds of a reasonable solution may lie in the concept of professional management. Responsible managing of financial and routine administrative services in one or more central Institutes would provide a potential network of people that could routinely provide data for a centralised analytical component among performing a multitude of other activities (such as cost analysis). By collaborating with the analytical group and other central units they could eventually create order out of chaos in a system that clings to traditional management. By injecting a set of participants not clinging to traditional patterns they can start doing things that were not undertaken before while at the same time not radically threaten traditions until such times as new patterns can be perceived as constructive.

In addition, they could provide the administrative stability that any bureaucracy needs to survive in an environment where executive leadership frequently changes. Finally, they would be the "buffer" between rapidly changing teaching and research activities and the immediate environment. A "buffer" is typical to many organisational research and development components. When properly maintained they can remarkably enhance effectiveness. While buffers of sorts exist now in the form of Bestyrers, (Chairmen), they are at best part-time (1/3 time was the response that most gave when inquired about time devoted to administrative duties) with a strong preference for the organisation's primary goals, research and teaching. This creates a small problem between the existing full-time staff in the Kurator's office and the Institutes. This came out in approximately 30 interviews with most of the professors subjectively expressing dissatisfaction with the Kurator's office. However, none of the dissatisfied groups objectively defined what they were dissatisfied with, and when some were asked they did not know what to say. The tension between these two is expected when different approaches toward and perceptions of administration come into contact. Critical integrating mechanisms such as professional management acting as a buffer can resolve or negotiate much of the tension.

The above may appear to be entirely or partially acceptable on the surface. However, no small amount of difficulty can occur with implementation problems. For example, the exact estimation of the number of people necessary for professional

managerial roles is difficult to discuss when the number of people in Institutes is largely unknown; how to distribute them is even more difficult given the fact of limited resources; and who and where to find competent people could be the most painful problem. Apparently university administration has not been attractive to both young people entering the job market and managers in governmental and private organisations. The main reason is obvious: there are not that many executive level positions a non-academic can aspire to. High level roles have traditionally been reserved for academics, many of whom do not really want to do it, but are dumped into it by colleagues who want to relieve their Institutes of academic mediocrity. American universities have a quite similar administrative pattern, but one which is changing. Non-Ph.D types with organisational skills are slowly beginning to fill executive roles previously reserved exclusively for teachers.

Once again the problem of technical capacity looms large. Since the capacity is in the developmental stages some planning will be necessary. Because of the difficulty in resource availability - taking on new people - or training those currently in the system a five-year overall administrative development plan with annual goals should be rigorously defined. The present leaders of administrative units should consider forming a group and formulating a series of alternative steps that would allow the University to develop its administrative and analytical capacity. An abundance of resources exists within the University: the Mathematics and Mathematical Statistics, and Economics Institutes might provide some inexpensive technical assistance. The problem comes with motivating it.

Professional management, as mentioned above, implies a control function, but because of status problems and the low probability of a non Ph.D manager having a control function professional management has little chance of making it. The situation in the short run is clearly irresolvable. What might occur is that the Ministries of Education will require so much more information constructed in a variety of complex ways that from the Faculty-level on down none of the present participants will be able to cope with it. Under the threat of reduced budgets and rejected requests for research and teaching facilities the University will have to bring in people to do it and make serious effort to keep them by allowing them to participate in major decisions. By participation is not meant an advisory role, but full voting privileges on policy-making committees. To put it more bluntly the University might be forced to change unless they soon realise the consequences of clinging to older notions of decision-making. While it was stated earlier that the University of Copenhagen is slowly moving in the direction of professional management it would be to their advantage to accelerate the process before incurring some uncomfortable and undesirable consequences from either or both the Ministries of Finance and Education. Since resource inputs from the University will level off it would seem to be desirable to begin using professional management as a device to explore those areas where

internal resources can be shifted within the system before impossible-to-meet demands arise. "Management by Crises" or doing something at the last moment may be allowable in a growth situation, but when the growth curve levels off it will not be possible to solve problems if resources have been 99% committed. The University could find themselves hard-pressed with virtually no way out no matter how logical and emotional the arguments.

Summary

The points of this discussion have been pulled out of an earlier report (CERI Project, Report VIII, IMSOR, Danmarks tekniske Højskole, 1970) which is much wider in scope and more random in discussion. The purpose here was to refine the discussion whenever possible on what appear to be two topics of special significance for the University's future. A general discussion of five alternative structures was presented not to demonstrate that "these are the five best - any one will work miracles" but to demonstrate that within a general constraint of a thing called a "law" there can be a great deal of playing room. Each alternative may depend more on political acceptability than on technical acceptability although the latter is not to be underestimated. The focus was at the executive level where there is a conspicuous lack of formal planning and analytical services (now emerging but somewhat undirected since there are no points in the University making much use of it) which provide a macro-view of the organisation. No attempt was made to objectively or subjectively assign an acceptance probability as the power relation and pattern of changing conditions are very unclear. Finally, the problem-solving process capacity, analytical capacity, adaptive capacity, and planning capacity should be major foci during structural design.

No matter how sophisticated a situation may look on paper a great part of qualitative outcome and processes depend largely on the proficiency of the role occupants. Clearly, most Faculties and Institutes simply do not possess administrative personnel capable of performing sophisticated statistical analyses of their programs that central decision and planning units will eventually be requiring as part of justifications for additional teaching and research funds. The longer the University delays in developing this capacity the more likely they will find themselves in a very unhappy situation and with no one to blame but themselves. The discussion on professional management may have made it sound as the ideal cure-all. Large complex organisations, however, need full-time management, planning, and analysis. Most Faculties still seem to assume the old proposition ("the longer and louder you shout the more money you get") is still true. Recently, however, one Faculty requested an additional 100 teaching assistants because they were in "acute need". An analysis showed that they already had more people than they needed; the real problem was that many people had seriously departed from the responsibilities the University informally expected of them. Unfortunately for that Faculty it was a professional outside of the Faculty that discovered what was going on. In the future they might consider a more cautious approach before

blindly volunteering as certain victims. A small group of professional managers could save them and the University considerable grief and embarrassment. While attitude and values may have to change before the concept is acceptable, a series of bitter experiences may unfortunately be the only alternative to accelerate the change.

Diagrams: II.3.3, II.3.4 and II.3.5 are incomplete.
For offices attached to the major ones listed see Diagram II.3.2.

Diagram II.3.1 "Old" Administrative Structure

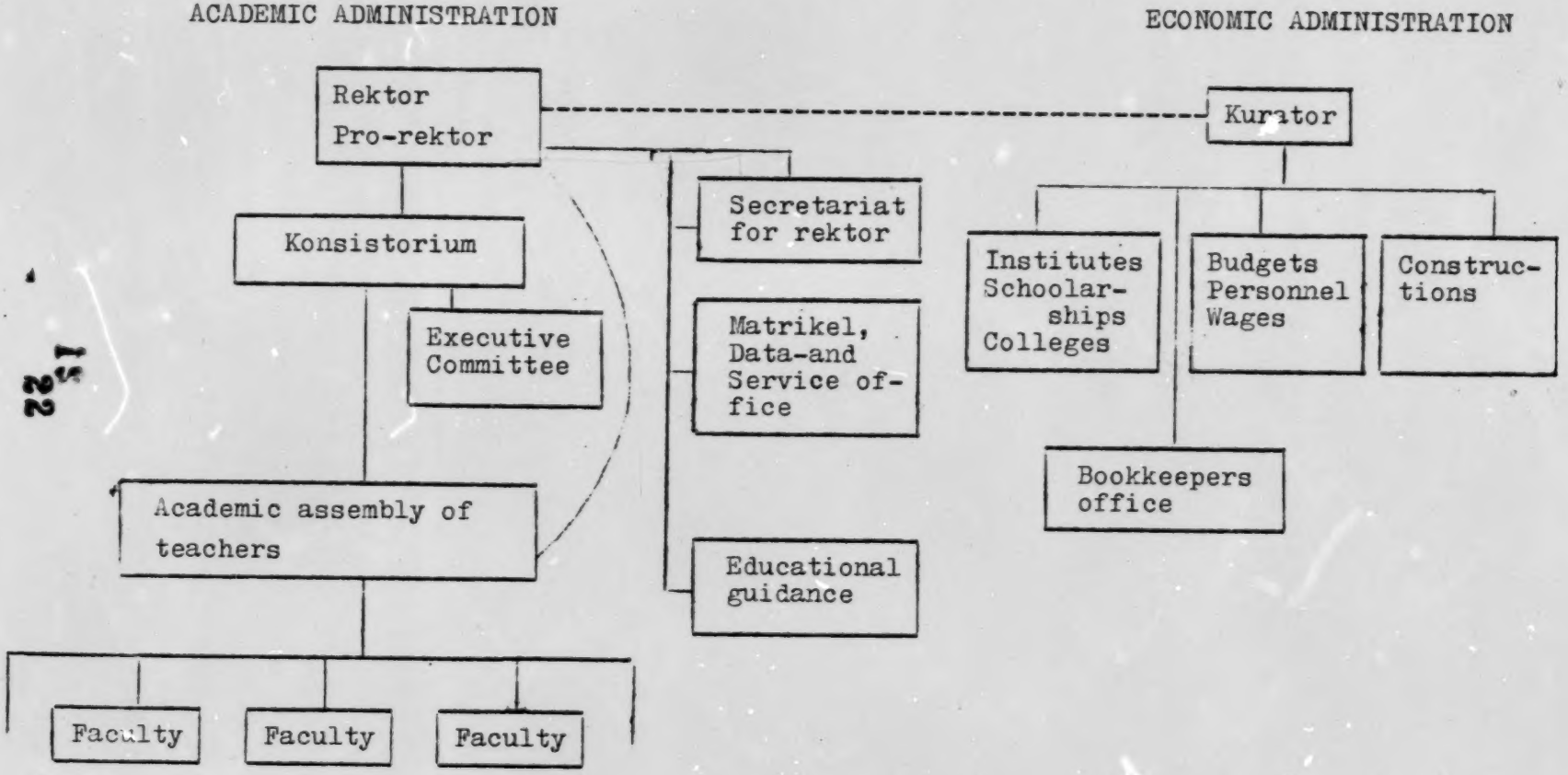


Diagram II.3.2 General frame of the "New Law" - not the final structure; negotiation is going on at the writing of this paper

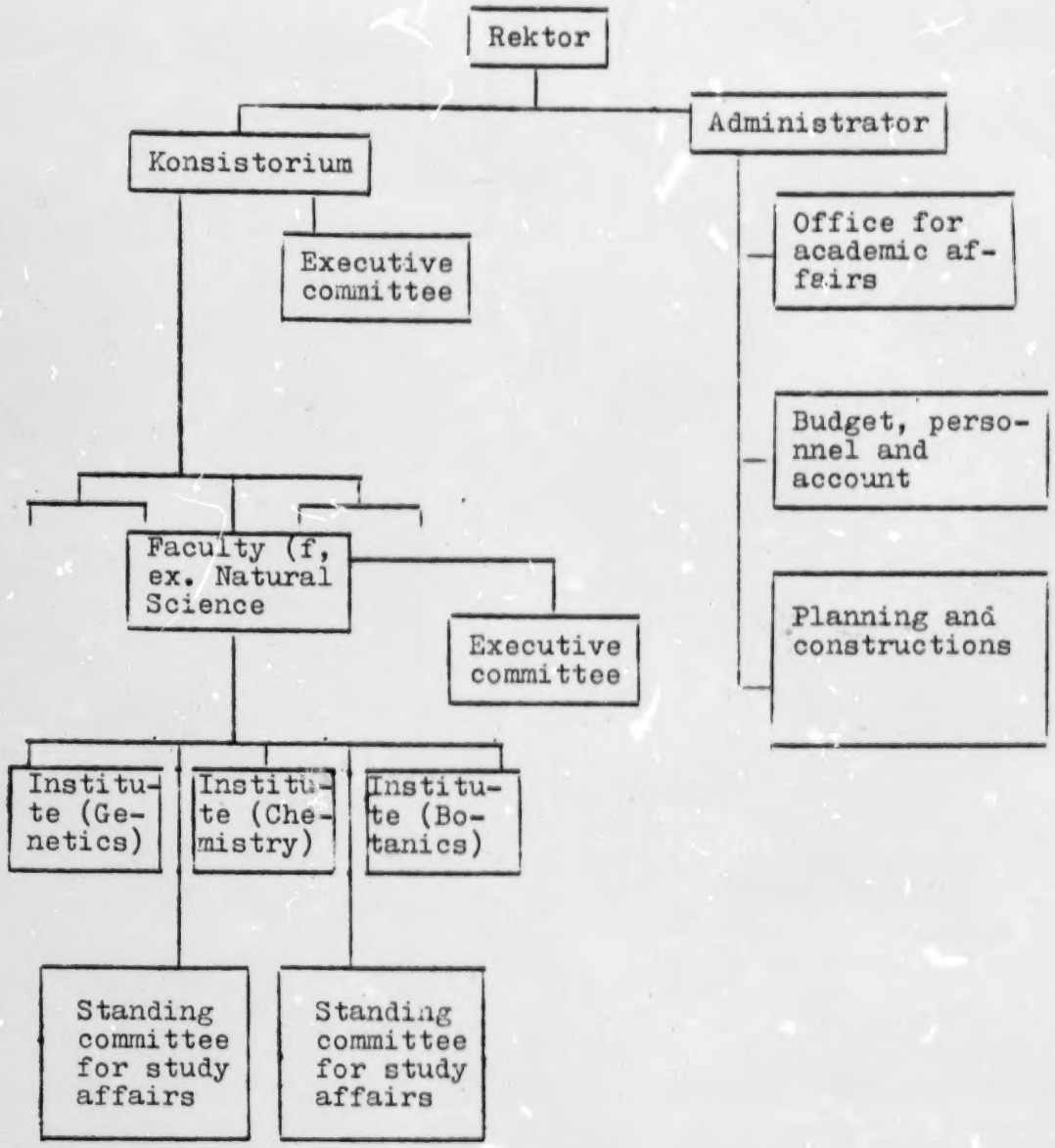


Diagram II.3.3 Alternative II

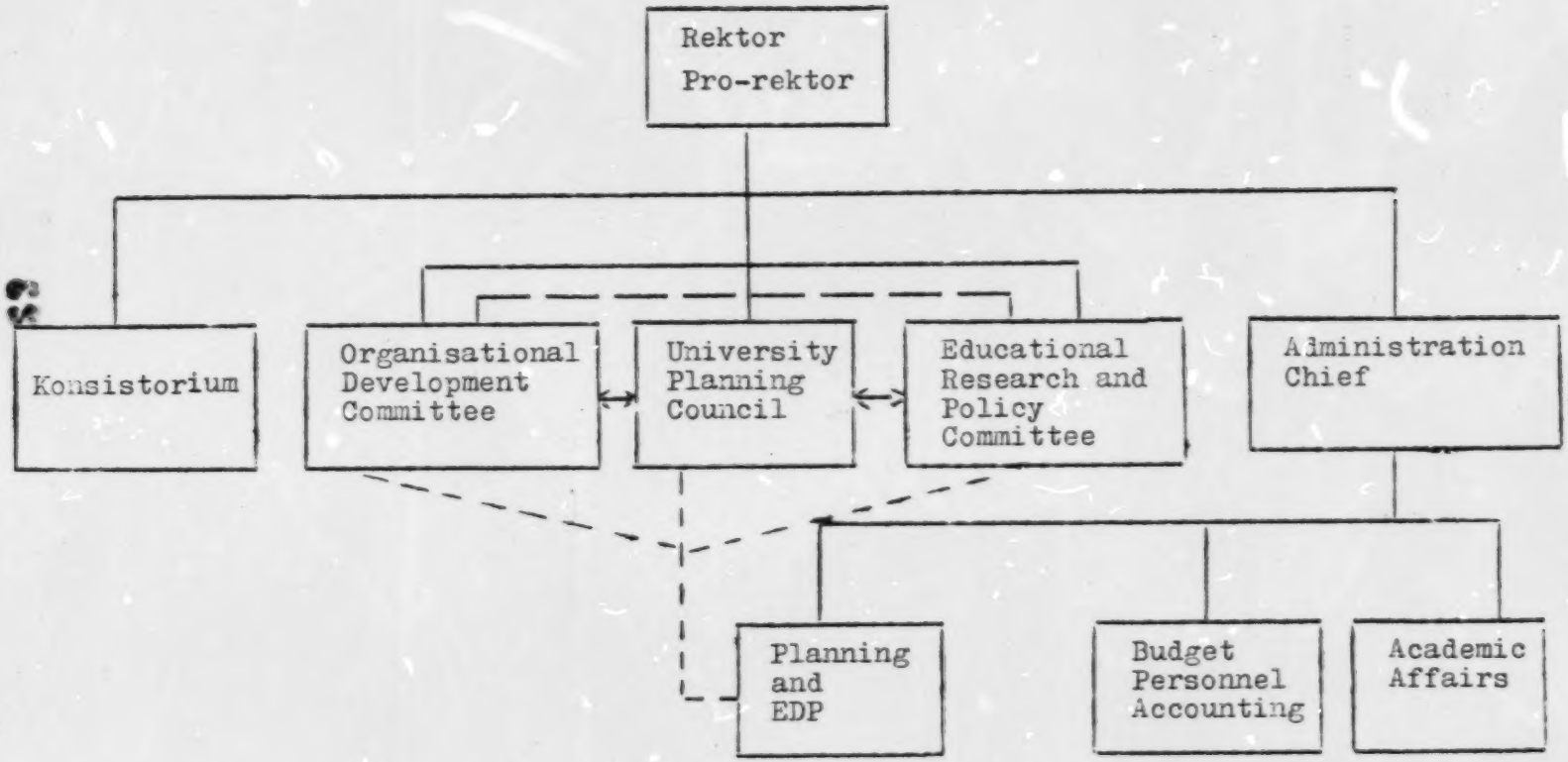
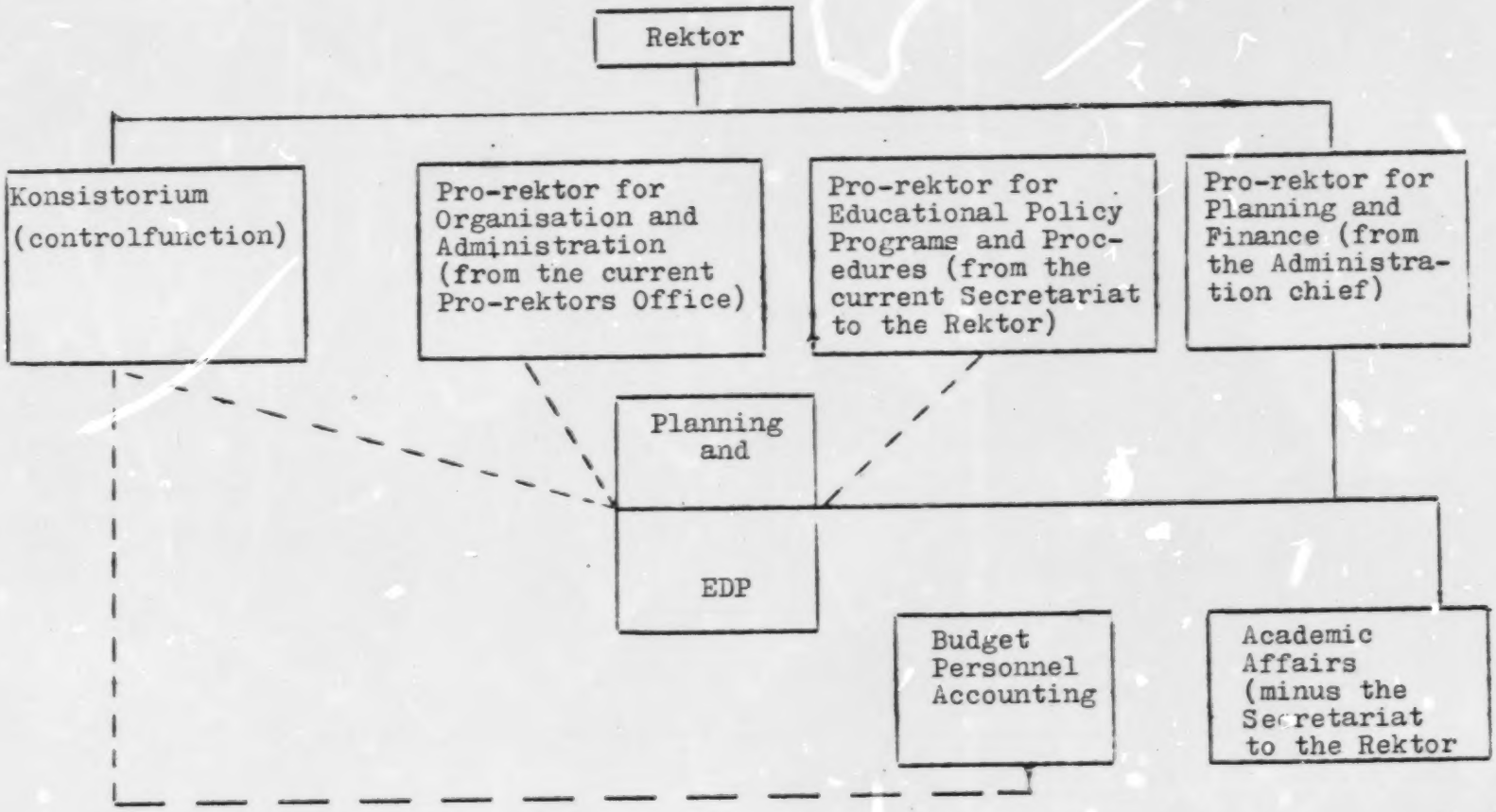
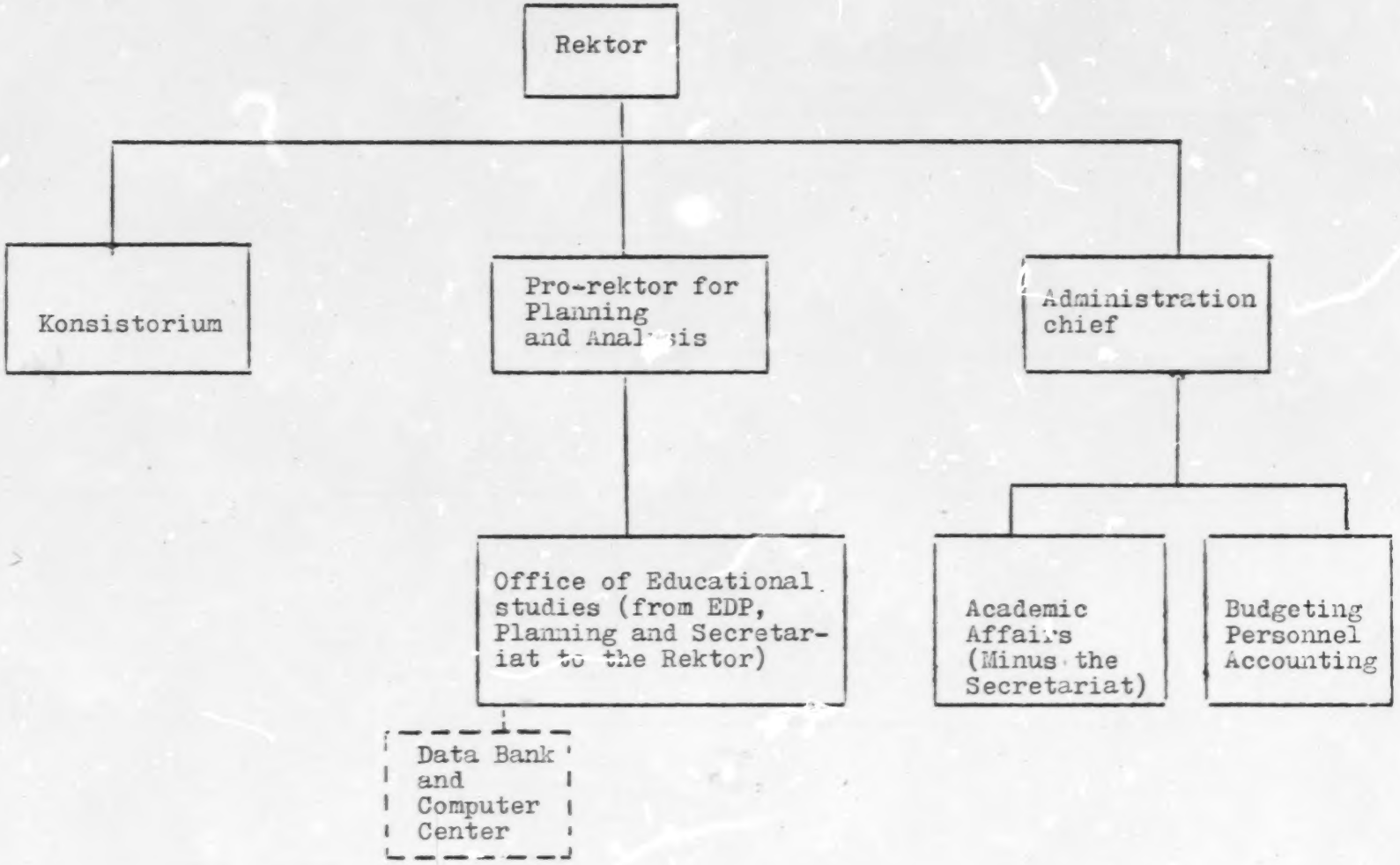


Diagram II.3.4 Alternative III


Rektor
Konsistorium (controlfunction)
Pro-rektor for Organisation and Administration (from tne current Pro-rektors Office)
Pro-rektor for Educational Policy Programs and Procedures (from the current Secretariat to the Rektor)
Pro-rektor for Planning and Finance (from the Administration chief)
Planning and
EDP
Budget Personnel Accounting
Academic Affairs (minus the Secretariat to the Rektor

Budget Office to Exericise Control and Mediating function in Budgetary Process: At least at the Faculty Level and at the Institute Level at its own initiative.

Diagram II.3.5 Alternative V


Rektor
Konsistorium
Pro-rektor for Planning and Anal sis
Administration chief
Office of Educational studies (from EDP, Planning and Secretariat to the Rektor)
Academic Affairs (Minus the Secretariat)
Budgeting Personnel Accounting
Data Bank and Computer Center

CHAPTER III

Comparative Remarks on the Universities of Copenhagen and California

by

Dr. Jonathan Halpern

Preface

In the first part of the chapter we compare the decision trees for the budgeting process of the two institutions under consideration, namely the University of Copenhagen and the University of California. In the second part of the report we try to show how the differences in the structure of the organisations and in particular the process of decision making in the budget-planning, results in differences in the research activity around the management and administrations of the two institutions.

It should be emphasised that we do not try to evaluate the decision processes in the two universities and point out their merits or faults. Neither do we intend to suggest any way of improving the organisational structure of any of the two. We restrict ourselves to a mere descriptive presentation.

Decision Trees in Budget Planning - The Universities of California and Copenhagen

When we consider the planning process of budget proposals and their approvement, it occurs that formally the decision centers and their hierarchy are similar in both universities. The actual decision process which takes place is however extremely different in the two schools under consideration. In this section we briefly describe the process of budgeting for current operations in both places.

We start with the University of California. At the beginning of each year the budgeting process opens with the proposals submitted by the chairmen of departments (the equivalent to Institutes in the Danish system) to the dean of the college or school in the university with which they are associated (these are equivalent to the Faculties in the University of Copenhagen). The dean's office then prepares the budget proposals for the school or college, and submits it to the Chancellor of the campus (the University of California has eight campuses all over the state of California). Both the deans and the Chancellors approximately know the limits of the next year budgets and while they prepare their proposals they negotiate with the lower levels (i.e. Deans negotiate with Chairmen of departments and Chancellors with Deans) in an effort to keep the budget proposals within the limits which they assume will occur. Thus even in the early and low level of the budget planning, negotiations and decision about priorities in resource allocation are taking place.

Usually during March, the Chancellors of the eight campuses of the University submit to the President's office their tentative budgets for the next five years (the President is the equivalent to the Rektor in the University of Copenhagen). These proposals are the result of the process of planning and decision making described above. These budget proposals are reviewed by the President's office and the Program and Budget Review Board. They are combined into a five year university-wide proposal budget which is then submitted to and reviewed by the Regents of the University of California.

It should be emphasized again that the President's office, while preparing the University-wide budget proposals, has to make many decisions about resource allocation among the various campuses and even particular programs. Again, this process of decision making is associated with active and difficult negotiations with the various campuses.

In September of the same year, the proposed budgets are submitted to the Department of Finance of the State of California. The proposed budgets represent the university's request for funds from the California State Government. The State acts only upon the first of the five year cycles. The Department of Finance reviews the proposed budget for the first year and negotiates various items in it with the university. These negotiations result in the budget message which is delivered to the Legislature of the State of California by the Governor of the State in January of the following year. The Legislator, which has to vote on the State's budget by the end of June, may also impose changes in the total amount of funds allocated to the university. The amount approved by the Legislator is transferred to the university and becomes a part of its budget.

The process is repeated annually. Hence any given year appears in five proposals, first as the last year of a five year fiscal program. Eventually it becomes the first one on which the State acts.

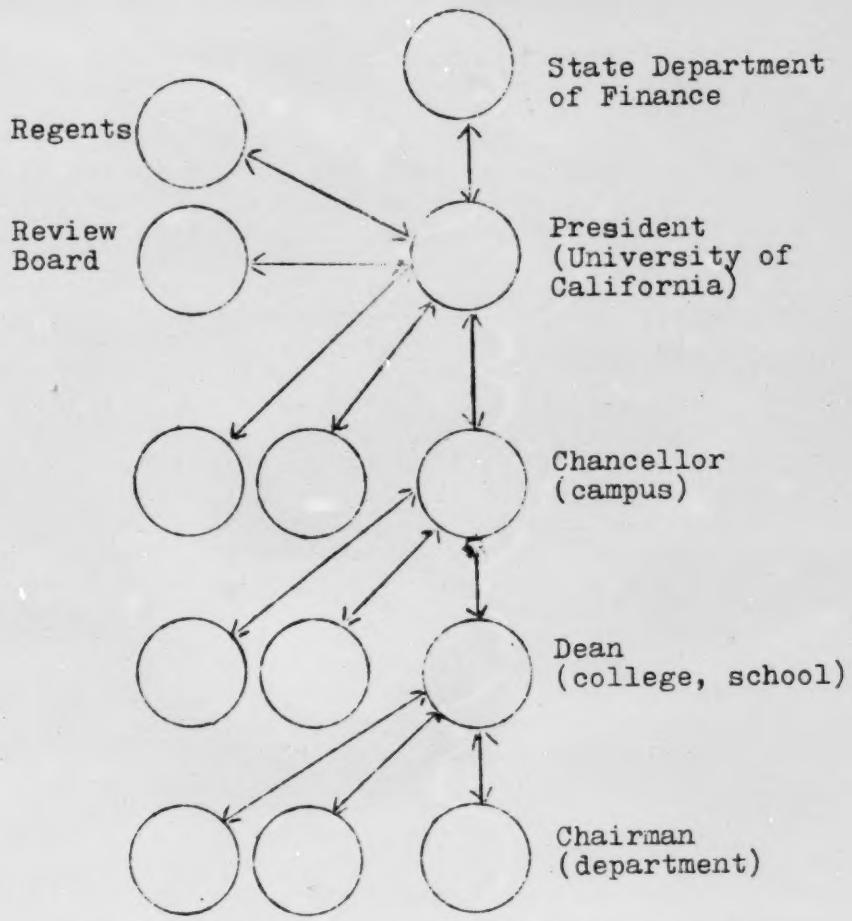
Whenever a change is made in the budget proposals, e.g. by the Department of Finance or by the Legislator, the allocation of the change, whether it is an increase or a decrease in the budget, is usually settled by a series of negotiations through all levels of administration, which were described above.

The budgeting process is illustrated in Figure II.4.1. The lines with the arrow heads on both sides emphasize the two-way flows of information and the existence of continuous negotiations all of which results in decision about resource allocation.

In the above description of the budgeting process in the University of California, we mentioned only the major flows of information, negotiations and centers of decision making. There are many other flows, forces and pressures which influence the initial, intermediate and final stages of the process. For

clarity, and in order to keep the discussion brief, we did not describe these less important or secondary factors. In our following brief discussion about the budgeting process in the University of Copenhagen, we adopt a similar approach. Only major factors and flows are mentioned, but the existence of others and their influence should be kept in mind.

Figure II.4.1: Decision Tree in Budget Planning in the University of California



The budget planning begins at the level of the Institute, which is equivalent to the Department in an American University. A budget proposal for the next four years is submitted by the "bestyrer" (who is usually the professor in the Institute) to the Faculty to which the Institute is associated. The proposal is a "marginal" one in the sense that it refers only to the requested increments in the budgets of successive years. It is always assumed that the last year level of the budget is automatically approved, and only the increase in the budget is to be submitted for approval.

The Faculty, which is in fact the collection of the "bestyrer" or the professors in it, does not make any decision about resource allocation or priority among the Institutes. The

individual proposals of the Institutes are combined, by a simple summation, to the Faculty proposal which is handed to the Konsistorium. At this level again, the lack of consideration about priorities in resource allocation among the faculties is evident. The proposals of the various Faculties are summed up, almost with no real and major changes, to become the university proposed budget. This proposal is then submitted to the Ministry of Education by the Rektor of the university.

Up to this stage of the budgeting process practically no decisions about priorities in resource allocation have taken place neither among Institutes nor among Faculties. Even at the Institute level priorities are not evaluated seriously enough for reasons which will be explained later.

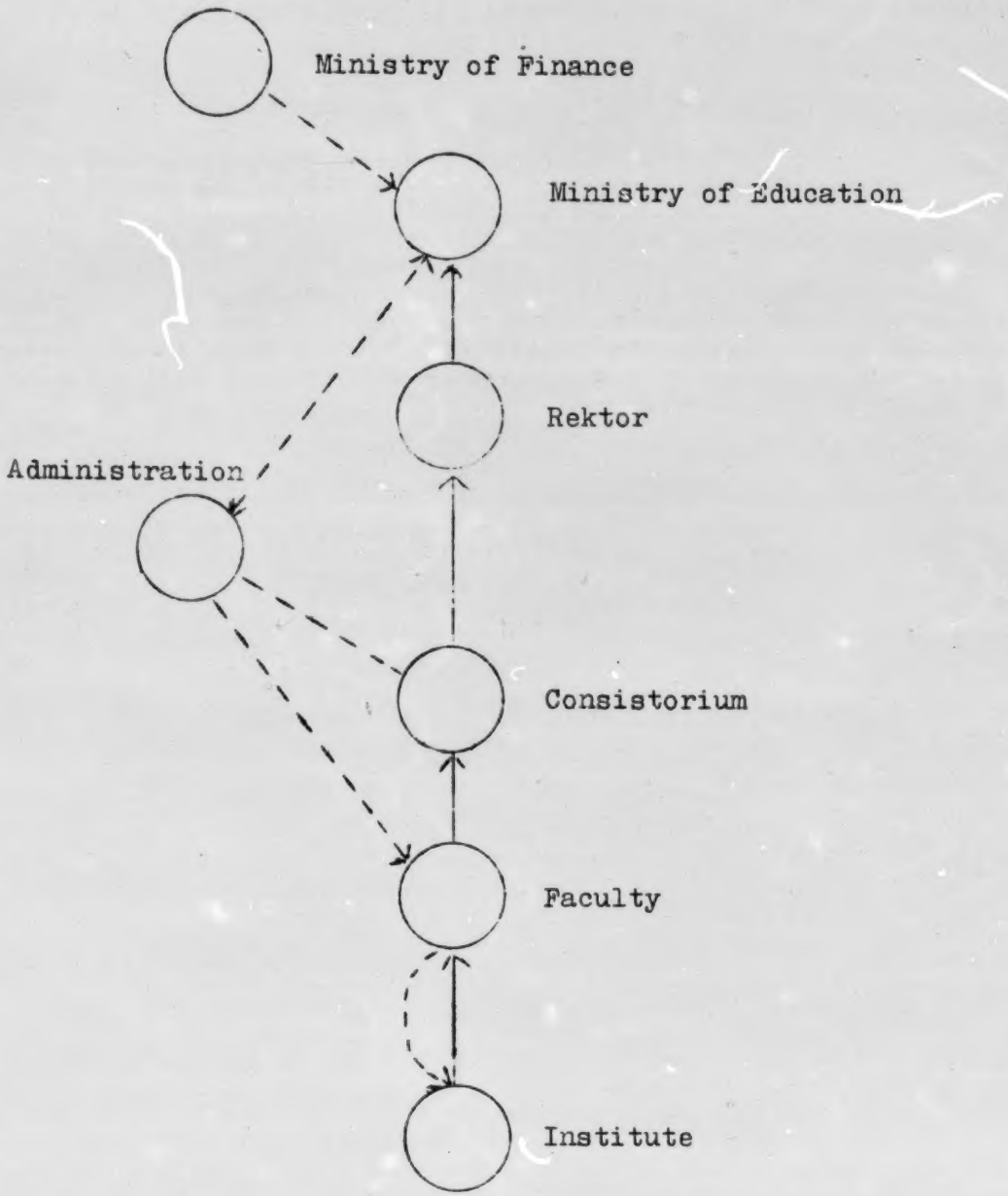
This "one-way" flow of proposals is indicated in Figure 2 by the arrows leading from lower to upper levels in the hierarchy of the university. It should be emphasised again that only major flows of information and decisions are illustrated in the figure.

The Ministry of Education, having the budget proposals from all universities, is also being informed, by the Ministry of Finance, about its next year budget allocation for higher education. Although the budget requests which are submitted to the Ministry of Education are for four years, the Ministry of Finance and then the Ministry of Education, acts only upon the first year (similar to the situation in California). Only this year has any formal value under the Danish law. The last three years are presented only informally. This weak status of the proposals for the future years is another cause for their limited value as a planning tool. The Ministry of Education then makes its decision about the resource allocation among the various universities. Its allocation to the University of Copenhagen is then transferred to the Administration of that university. These "backward" flows are indicated in Figure II.4.2 by the dashed arrowed lines. The budget which is approved by the Ministry to the University is usually substantially smaller than the one requested by the Rektor.

The Administration, which is a separate body from the Rektor's office (not as the President's office in the University of California) is then left with the problem of allocating a limited amount of resources among competitive demands for it.

The position of the administration in the University is not strong enough and it is not sufficiently active as to allocate the limited resources following a thorough study of priorities among faculties. Instead, the Administration usually suggests to the Konsistorium and the latter usually accepts it. The actual budget of each faculty will be a fixed proportion of the budget requested by this faculty in its proposal. In other words an equal proportional cut in the budget proposal is applied to all Faculties in order to bring the university budget to the level of the ceiling imposed by the Ministry of Education. Thus, although a decision has to be made at this stage of the budgeting procedure, this decision is made without serious consideration of priorities among the various faculties and items in their budgets.

Figure II.4.2: Decision Tree in Budget Planning in the University of Copenhagen



Because of this equal proportional cut in the budget of all Faculties, it is clear why the Faculties will not discourage, if not encourage their Institutes to submit exaggerated budget proposals. This in turn eliminates a serious investigation of priorities at the Institute when its budget proposal is prepared and submitted to the Faculty.

When a Faculty is informed by the Administration and the Konsistorium about its actual budget for the next year, its budgetary committee decides where and how much should be cut from each of the Institutes budgets. This is the first stage in the budgeting process where alternatives and priorities are evaluated. Unfortunately, this decision-making process is carried out in many cases on a collegial level within the Faculty and far from the critical public eye. Once the Faculty makes its decision and has a budget which does not exceed the ceiling, it transfers it to the Administration. From here it is forwarded to the Ministry of Finance, where it finally becomes a part of the national budget.

To conclude this descriptive part, it is clear that there is an important difference between the two budgetary processes in the frequency of decision making and evaluating of priorities and alternatives. In the University of California system the budgeting is associated with choosing among alternatives and setting priorities in almost all levels and stages of the process, from the Departments to the State Department of Finance. In the University of Copenhagen the insufficient amount of such activity is obvious and in the few stages where such unescapable decisions are made, they tend to be carried out through collegial agreement rather than by bargaining and negotiations among the interest groups.

In the next section we shall try to evaluate the effect of these differences on the research activity in the two universities and suggest a few possible topics for further research, particularly in the University of Copenhagen.

Research Activity in Administration and Planning - The Universities of California and Copenhagen

We will give a brief description of the research activities in the area of administration of higher education which is conducted in two institutions, and try to compare the two, the University of California in Berkeley, California, and the University of Copenhagen in Denmark, and draw some conclusions.

The research activity in Berkeley, which this report refers to, is carried out in various research centers. In particular, the four major groups are: The Ford Foundation Research Project, The Administrative Studies Project in Higher Education, the Office of the Vice-President-Planning and Analysis, and the Office of Institutional Research. These four groups are leading the research in the management of the University of California in general and the Berkeley campus in particular.

The research which we refer to in Denmark is carried out by a group set up at the Institute of Mathematical Statistics and Operations Research in the Technical University of Denmark.

The research activity about the administration of the University of Copenhagen is very limited when compared with that of the University of California. To argue that this difference in the level of the research activity is a result of the fact that the management sciences were introduced in the United States earlier, or that they are more developed there, is not a sufficient explanation to the existence of this difference. In the report we shall try to indicate, only with respect to the limited example of these two institutions for higher education, how the organisational structure is partly responsible to these differences.

The difference between the budgeting processes in the Universities of Copenhagen and California has its effects in many ways, one of which, namely the research activity in the administration of the university, we shall briefly discuss in this section.

The continuous negotiation and pressures for making decisions in the budgetary process in the University of California requires the accumulation and updating of a relatively large amount of data. This is not so in the University of Copenhagen, where only at the present, initial efforts are being made in order to establish a valuable data-base. The availability of data in itself is an encouragement for potential researchers to get involved in research projects concerned with the current administration and planning of the university. But the existence of available data in itself may be considered as a necessary condition for advanced research, but it is not sufficient.

The demand for such research projects and the fact that there are prospective clients for the results, is the other requirement for growing activity in administration studies. This second condition exists in the University of California where in all stages of the budgetary process bargaining, negotiations and competition on scarce resources exist. Almost every administrator needs the results of some research projects to support his stand in his negotiations with lower or higher levels in the administration. Thus many of the published reports and research projects concerning the administration of the University of California, have a clear problem which they refer to. This situation is further reflected by the fact that the four major groups of research in the University of California, which were mentioned in the preface to this chapter, are all associated with centers of decision making, either the Vice-President's Office for Planning and Analysis or the Chancellor's Office in the Berkeley Campus. The research group in Denmark is however an external group which is outside the University of Copenhagen.

In many cases the research in the University of California is oriented to the problem of model building and finding the feasible sets of alternative policies. In most cases the decision about the choice of a policy is left to the Administrator. This type of report covers three main areas of interest in the university administration:

1. Problems concerned with students enrolment, attendance, performance and attrition.

2. The teaching staff is investigated with regard to policies of appointment, promotion, retirement, workload, etc.

3. Some projects investigate the relation between two or more of the major areas, e.g. students and teaching staff, students and physical facilities.

Many other reports and research projects consider the wider problem of the whole university rather than a small and restricted area of investigation. These include on the one hand the efforts to simulate a compus in the university system (see Weathersby 1967) and on the other hand the basic research in the identification and measurement of the outputs and objectives of a modern university (see for example Balderston 1970).

The research group in the Technical University of Denmark is differently oriented. The different decision and budgeting processes, and probably the fact that the group is outside the University of Copenhagen itself and is not a part of any decision making center, influence the group to adopt a different approach. Most of its projects are descriptive in nature rather than building and solving models. The limited number of research projects which turn to the techniques of model building and their solutions is significant. Not only the limited and unreliable data is a cause for this situation, but also the lack of active decision making centers in the University of Copenhagen which look for solutions and precise formulation of their problems.

The subject of the administration of the university is essential. The research activity around the structure of the university, its budgeting process etc. is therefore crucial and should be continued with reference to Organisation theory and expanded to include suggestions for changes.

The model building approach is equally important. The obstacles for this approach are clear, and many of the American type research projects are either irrelevant in the University of Copenhagen or impossible to apply due to lack of data. The type of model in which the aim is to construct and locate the sets of feasible policies rather than any optimisation effort, is the suitable approach. In other words, the constraints and restrictions which are imposed by various sources should be the major subjects for research and not the objective functions.

For example, lower and upper bounds on class sizes in various courses, bounds on tenure, non-tenure and hourly paid mix in the teaching staff, may provide a useful information about feasible hiring policies etc. Investigating and defining these constraints may lead to relatively small sets of feasible policies in many cases. A sensitivity analysis of these sets, with respect to the values of the parameters which are used in the model is equally important.

Another important type of model is one which is closely associated with the collection of data.

A difficult problem in the University of Copenhagen planning and administrative procedures is the lack of knowledge about active and inactive students. A student may register to the university at the beginning of the year but remain an inactive student during the year, i.e. does not attend lectures, does not take examination or perform other activities which will bring him closer to the end of his studies and graduation. Those students are different from those who drop out of the university and give up their hopes for graduation. An inactive student may return during the year or after one more year. He keeps registering annually to the university and appears continuously in its files.

Let us assume that there are three levels or status for the active student during his studies for a degree. Furthermore we may define (and precise definition will be required here) the states of graduation, inactivity (as described above) and drop-outs. Thus, a student in a first level of education, may, for example, after one year proceed to the second level of education, become inactive or drop out. We may assume that graduation occurs only for a student who completes the third level of education. By searching in the files of the university, sampling techniques or cohort study, one may (without minimising the enormous difficulties) estimate the parameters of the transition probability matrix, which describes the movement of students among the various states described above. The parameters of such a matrix depend on the faculty under investigation or they may be stable throughout the university. They may change over time or be time-independent. To answer these inquiries and estimate those parameters is an example to a simple model, associated with a large amount of data collecting. The possible applications and uses of such a model in planning, budgeting, etc. are numerous.

To conclude this chapter, we would like to emphasize that many of the remarks which were made throughout the report are bias in some sense. Our approach was a critical one toward the situation in the University of Copenhagen, and using the current research in the University of California as a source for some possible ideas to be implemented in the University of Copenhagen. There is no doubt, however, that in many other areas, for example the student's participation in the decision making process, the Danish University is at least a few years ahead of many of the American universities.

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G.B. Weathersby (1970), "Educational Planning and Decision Making: The Use of Decision and Control Analysis". Ford Foundation, Paper P-6. Office of the Vice-President - Planning and Analysis, University of California, Berkeley.

CHAPTER IV

The University of the Future
Its Organisation and its Working Conditions

by

Professor Arne Jensen

The changes that higher education in Denmark have been undergoing in recent years spurred on by an education wave sweeping over a large part of the world, has led to much debate and rethinking of the goals and functions of universities. We have heard numerous expressions of desire to give assistants and younger members of the faculties, as well as students, greater opportunity for exerting an influence on their daily work in the halls of learning. Indeed, during the last month we have heard specific complaints about dull professors, uninspired pseudo-scientific grind, irrelevant curricula and, more generally, lack of incentive and leadership. One branch of a well-known university was seized by a group of activist students.

While it must be pointed out that such expressions of desire for change have come not only from students but also from teachers and professors, it must also be realised that it is the very nature of a university to be conservative, that change can come only slowly if true values are to be preserved, that they have a venerable tradition behind them, that stability is a condition of their existence and that territory won through years of toil cannot be easily surrendered.

Therefore, in the crisis that we are now facing, it is important to formulate and to state clearly what are the goals and not merely to overcome present difficulties in the short-run. We must make it clear for ourselves what kind of university we wish to develop and outline the steps that will bring us nearer to our goals. We must engage in a dialogue about the ideal university, try to formulate our plans and attempt to state the way in which it will differ from what we now have.

Higher education and the accompanying research depend on the availability of adequate resources and on physical facilities, but also on the cooperation of large groups. It follows that the individual institutes and departments must play a greater part than heretofore and must do this according to a well-thought-out plan. So far criticism and complaints have been heard and very little by way of constructive proposals have come forth. No phase of the present work has escaped this criticism: lectures, seminars, workshops and laboratory exercises.

The rapid growth has also had an interdisciplinary impact. Numerous attempts at coordination have been made because it was thought that in this manner the instruction could be made more effective, the working conditions could be improved for the students so that they would be able to get through the curriculum

more quickly and that the number of students quitting before getting their degrees would be smaller. While it obviously is advantageous to work in large units and so to widen the area of cooperation between departments, it must also be realised that this has its disadvantages of which one certainly is the interference with heretofore well-working practices and with established personal rights. Innovations will primarily affect the assisting personnel and it is to be expected that these individuals will be the first to react or at least will wish to be heard before any restraint is brought to bear on their endeavours. For the individual student the bringing together of larger units and the closer interdisciplinary contacts will mean a considerable reduction in the scope of his personal choices. His working day is likely to be more prescribed for him in minute detail leaving him little time for his personal preferences and working habits. The formerly inspired teacher and researcher is likely to become a functional robot and the student will be driven by an odious whip. The chances of an assistant becoming a researcher in his own right will be small indeed.

Study Cells

In a recent discussion with Professor Russell L. Ackoff, University of Pennsylvania, he called my attention to an old truism: "The best way for a student to learn a subject is to instruct in it." This is certainly true for most of the basic subjects if not for such things as laboratory exercises or the pronunciation of a foreign language. Furthermore, it will of course not be possible to use this approach for all students. One manner in which the principle can be utilized, at least in part, is that of forming small units, perhaps of five students each, the members sharing the responsibility of instructing each other, each one teaching his own preferred subject. In the ideal case there may be as many distinct subjects as there are members of the cell and it may indeed work quite well, say during the first two years of a branch of study. It would, of course, be desirable if the composition of the groups be such that there be a maximum of difference in personal preference and interest so that each one will have a maximum to share with the other members of the group.

One thing that must be kept in mind is that the questions which a student will wish to have answered are not always the ones that are dealt with in lectures, nor even during the instruction by other students in his group. For this reason, it is essential that more experienced teachers be available to be called upon to supplement the work of the cell. This can be done by scheduling regular meetings with professors and amanuenses before whom the more difficult problems and unusual questions can be brought. It is possible that at such meetings two or three different groups can be brought together. Under such a system the work-load to be carried by a professor or amanuensis would not normally be larger than it is under the now prevailing system.

Membership in a group of this nature should, of course, not be mandatory; it should be possible for a student to take part in the test of the group without necessarily having participated in all its meetings. The final test is that of having acquired a certain amount of knowledge at a given time without undue emphasis on how it has been acquired.

An arrangement of this kind would offer a greater amount of independence and a greater personal satisfaction in his work for the student, and for the teacher and the assistant the advantage would be that the group discussions could be devoted to more crucial and interesting questions and not to the simpler routine matters that the students can deal with on their own time without difficulty. The student will in this manner sooner be drawn into the borderline of knowledge and come in contact with the scientific leadership of the institution.

Module System for Plans of Study

The other difficulty mentioned earlier is the increasing need of coordination within a plan of study which may entail a very real restraint on the student's free choice of subjects.

However, it seems to me that there can be no valid reason for not letting each student make up his own plan of study under condition that the professor most directly concerned has a limited form of veto right. Instead of, as is now practised, handing the student his schedule, he should have the privilege and the obligation, at least initially, to submit his own plan.

It is argued that this might entail a good deal of wasted effort and delay in getting started on a sound course, but it is my considered opinion that any possible small loss in coordination would be outweighed by an increased personal satisfaction which in my estimation may easily amount to as much as 30% in effectiveness.

In advocating this course of action I must confess that I am largely motivated by a knowledge that a large part of the subject matter now taught in our universities becomes obsolete within a relatively short period of time. For this reason, there is a chance that the curriculum which we now force on our hapless students may be exactly that which is most useless in the future. I would therefore be in favor of a system in which risks and rights are balanced and in which the professor - or the system if you will, because it is more likely to be a faculty committee - serves more as a counsellor than as a dour disciplinarian. Also, the community as a whole has a stake in this and should be interested in a much needed flexibility in our universities and institutions of training that keeps in step with the times and is not guided by personal idiosyncracies and vested rights. One further step toward increased flexibility and freedom of choice for the student would be that of making it possible for him to carry out a substantial part of his studies abroad and to enjoin our own institutions to recognize and to give due credit for such studies or at least to conduct tests

to evaluate the results thereof. Incidentally, difficulties and bottlenecks that temporarily arise at home could in this manner be bypassed and if a deficiency is allowed to go far, the very comparison with what is done abroad would provide an inducement toward remedying the situation, e.g. by the establishment of a new university chair or whatever may be needed. Any financial assistance for studies abroad may in my opinion well be tied to a pledge to return to fill a suitable position at home thus avoiding the so-called brain drain.

Examinations

Concerning examinations, I must confess that I do not have any objections in principle to letting the candidate himself, at the conclusion of a well planned and adequate program of study, produce a document which in good faith sets forth his own accomplishments, and to sending him out into the world with that. On the other hand, I do not believe that either professional associations or prospective employers would let such a document form the sole basis for accepting a candidate.

I consider it necessary that the professors still take on the task of appraising the students before they leave the universities as an appraisal will take place in all circumstances - and in a much less fitting way for the students by professional associations and employers.

This is not to say, however, that I am not in favor of reforms in the examination procedure. It goes without saying that the greater freedom in planning a course of study calls for a broader and more adaptive method of evaluating the results. On the other hand, there is no reason why the candidate should not be examined in each one of the courses that he has followed and that a documentary proof should not be provided to show that the plan of study as originally stipulated has actually been carried.

The Organisation of the Institutes

It has been the lot of "science" throughout the ages of history to depend on the influential and the economically strong in the community as science, direct or indirect, at all times has been an expensive affair. It is also true, however, that under the general system of economic freedom which we are now enjoying this dependence is somewhat lessened. A certain spiritual freedom has followed in its wake and with the advent of the 20-30 hour week for some citizens it has been possible for a much larger proportion of our population to engage in research activity of many kinds. We must be prepared to accept that the right of admission to the laboratories and libraries of our institutions of learning will, so to speak, be a fundamental right for all and the possibility of influencing the development by the creation of new disciplines or the establishment or non-establishment of new chairs of learning will be less relevant than it is today.

Our present system with its rigid structure and its channeled procedure has made it possible, at least in the larger institutions, to employ well qualified, non-academic personnel with reasonable expectation of advancement. It is a wonder that we have not heard more from this group concerning demands for realization of the promises. Considerable results have been obtained under this system, but it has not always worked out this way. Control of the institutions and the projects has often been exercised by the control over investment in material but one wonders whether better results would not be obtained by better planning and the employment of the right personnel to further the projects. Society has also a stake in this because we deal with public funds. From the standpoint of the assistants and the amanuenses it is to the advantage of the younger men to be attached to the research of a group until the conclusion of its project and thus gain the experience that will enable a man to seek other employment where he will be more on his own and less bound by the tradition of an institution.

What then remains for the professors? Well, their duties will still remain that of deciding on the contents of courses and curricula and to do this by producing text books and notes, to guide students and to control the scope and form of examinations, also the planning of research projects and the formation of research teams. It is also their duty and privilege to give lectures and plan their contents according to their own best judgment, to engage in or participate in research planned by themselves or in cooperation with colleagues; their freedom of choice will in fact be strengthened because in the immediate future any one discipline will be less circumscribed by what has been good latin in the past. Under a system as outlined here the younger assistant will in his earlier years be enabled to work as part of a team on a well formulated project and then, as soon as he qualifies himself, by obtaining a Ph.D. degree or passing a similar landmark, be in a position to formulate and guide a project of his own choosing. If capable, he will then not feel the compulsions and frustrations of earlier years because he will be able to judge what he lets himself into and can more truly choose what interests him.

As of this moment we have already enlarged our various institutions, and provisions have been made for placing them on a sound economic footing. The detailed planning of the forms of instruction on the undergraduate level and the broad outlines of research still remain to be formulated. This statement holds true not only for the universities but also for many other of our governmental, industrial and social institutions.

Let us make ourselves clear that four functions are relevant to our universities. A university must have 1) a structure, a functional and economic viability like any other business; 2) it must teach because instruction and education is its main product and primary raison d'être; 3) it must engage in research, be in the forefront in expanding the frontiers of knowledge; and finally, 4) it must give examinations in order to evaluate its own products.

To the outside community it furnishes three kinds of products: 1) candidates who have benefited from its instruction, 2) reports of its research and findings, and 3) advice and counsel for those who seek it from government or industry, from the public or the private sector.

Summary of Proposals

1. Students will teach each other daily in small groups and arrange weekly meetings with teachers and professors to discuss the more important and difficult problems.

2. The individual student will make up his own plan of study for periods of at least two years at a time to be approved or modified by a professor or properly constituted committee. The student will be advised by experienced teachers so as to obtain the maximum benefit of his efforts and his time.

3. The student, after having completed the first part of his studies, perhaps covering the first half of his entire program and after having obtained the corresponding diplomas, will prepare his next two year plan and follow this up by a third and definite plan for the final phases of his study which should include some research or at least some independent project which may or may not be a part of the research of a larger group. Such a project should always be planned and carried out with the counsel and under the guidance of a professor or other qualified person. This fulfills the requirements for obtaining the degree of candidate.

The diplomas, of course, may serve as proof of the completion of a program of study before the final conferring of the degree. Under the proposed plan students would have greater freedom in selecting the subjects that interest them and thus be in a better position to meet the problems that will face them in the future. They will, of course, have to assume the risk that necessarily is connected with the choices made, but this will not be very different from what prevails at present.

The assistants will also have greater freedom in selecting the groups that they will want to join, the activities for which they want to make themselves available and the research objectives to which they find they have something to contribute. The results will depend on each ones' personal effort.

The professors will be more free, it will be possible for them to concentrate more on their research. The proposal should also be conducive to more cooperation between groups where students and professors can rally around more comprehensive problems than is feasible at present.

Above all, the individual student will at an earlier time than is generally possible at present be able to assume responsibility for his own progress and to seek guidance from his elders when needed. He can in time leave the institution well equipped for his future profession if his plan of study was well conceived and executed and with his diplomas to prove that the plan was duly carried to a conclusion.

We have always in Denmark been inclined to pride ourselves in attempting to provide a good education for our young people and in a small country this is even more essential than elsewhere. We should also try to put ourselves in a position to be able to say that our institutions are among the best in the world. What is needed now is a more incisive debate about the forms and the conditions under which we want to work - a more comprehensive analysis of the mode of operation of our educational institutions.